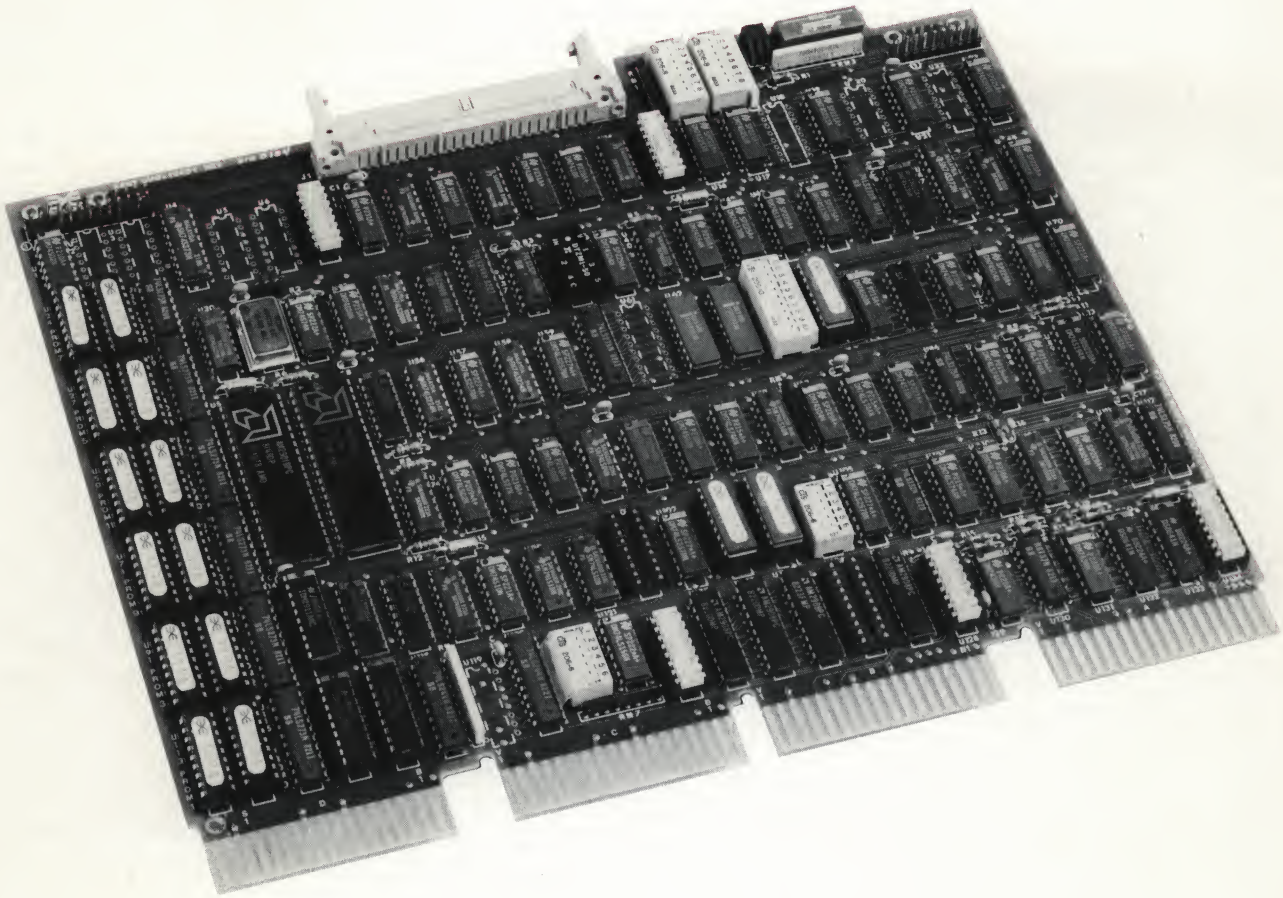
EMULEX

THE GENUINE ALTERNATIVE
LSI-11* HOST ADAPTER TECHNOLOGY

EMULEX UC01 SERIES



NOW YOU CAN COMBINE THE ECONOMY AND RELIABILITY OF COMPACT SCSI INTERFACE PERIPHERALS WITH YOUR LSI-11

Introducing the EMULEX answer to interfacing to the SCSI (Small Computer System Interface). The UC01 Emulating Host Adapter matches the economy and durability of today's new breed of Winchester disks with the versatility and backup protection of cartridge disk drives using the SCSI Bus/Interface. This capability provides the flexibility and safety demanded for implementing effective mass storage with the DEC LSI-11. And, with the UC01, you get the same features and quality the industry has learned to expect and depend upon from EMULEX.

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DESIGNED TO HANDLE SMALL TO MEDIUM CAPACITY WINCHESTER OR CARTRIDGE DISK DRIVES, THE UC01 GIVES YOU THE ADVANTAGES OF...

USING standard DEC operating systems and diagnostic hardware.

IMBEDDING the host adapter in any single quad slot of a standard LSI backplane.

EXECUTING a comprehensive set of self-test diagnostics as part of every startup operation.

REPLACING separate system bootstrap, bus terminator, and real time clock hardware with built-in options on the board.

INCORPORATING currently available small to medium Winchester and removable-cartridge disk drives with the versatile SCSI interface.

MIXING of different disk drive types and capacities on one host adapter for optimizing system configuration.

YOU GET OPTIMUM COST/PERFORMANCE IN THIS RANGE BECAUSE...

The UC01 emulating host adapter was designed specifically and exclusively to integrate small to medium capacity Winchester and removable-cartridge disk drives with the LSI-11 incorporating the standard SCSI interface. Combined with EMULEX SCOX controller models, which offer alternate interface configurations (e.g., SMD, ANSI), users have complete flexibility in selecting drives and controllers for every LSI-11 hard disk application.

UNIQUE, UNCOMPROMISING DESIGN GIVES YOU BIG SYSTEM VERSATILITY IN A SMALL, ECONOMICAL PACKAGE.

The UC01 design is based on EMULEX's microprocessor technology, already proven in thousands of controller installations. The following combination of features makes it the unbeatable choice for effectively using today's small, inexpensive intelligent mass storage peripherals in LSI-11 systems.

MICROPROCESSOR ARCHITECTURE. The same EMULEX bipolar microprocessor architecture which consistently sets industry standards is used to give the UC01 broad flexibility and high performance characteristics.

COMPACT PACKAGING. Only one quad-height pcb plugs into any standard QBus slot to minimize installation cost and complexity.

SOFTWARE TRANSPARENCY. Intelligent microcode provides software transparent emulation of DEC RL01/RL02 subsystems, including execution of standard system-level diagnostics, thereby permitting use of standard DEC operating system drivers.

22-BIT ADDRESSING. Full 22-bit hardware provides full 4 MByte memory addressing capability.

BUILT-IN CLOCK. Hardware included on the board provides software-controllable line time clock (BDV11 compatible).

BOOTSTRAP/TERMINATOR OPTION. On-board sockets are provided for insertion of 512 word bootstrap PROMs and QBus terminators. Combined with a line time clock, these facilities can often eliminate the need for separate system hardware (typically the BDV11).

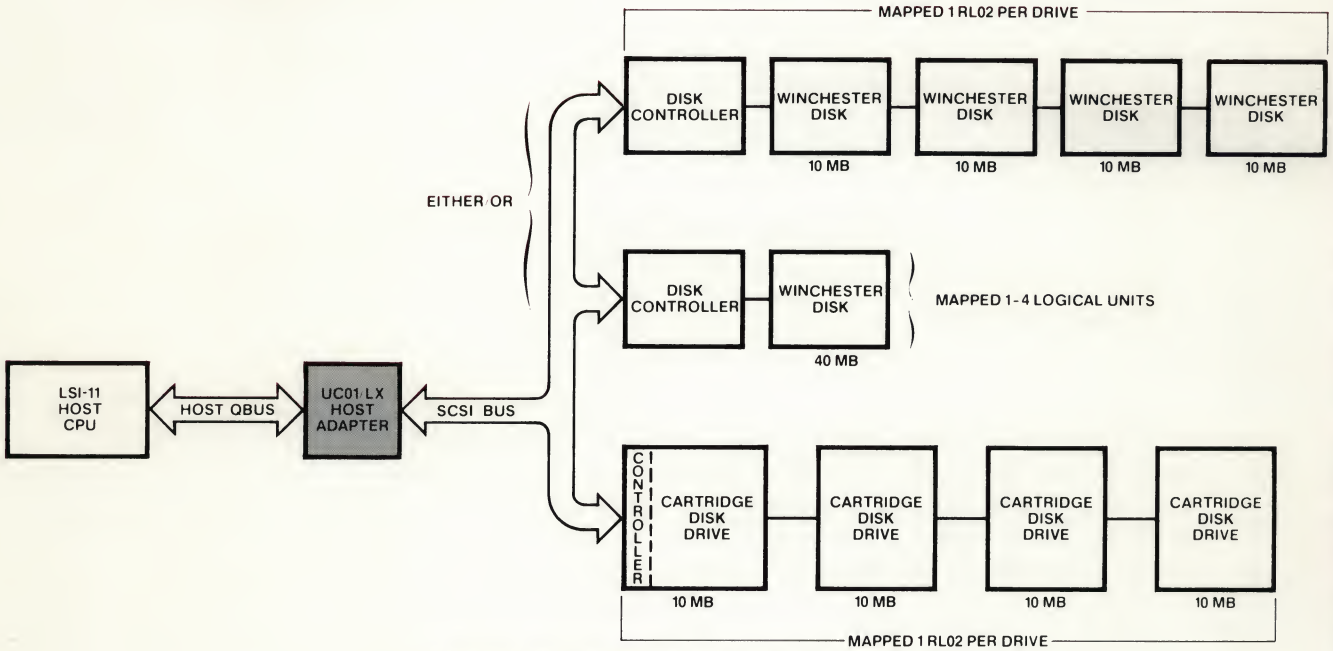
MIXED DRIVE CAPACITY. Disk drives having different combinations of storage capacity can be handled by the UC01 host adapter. The drive type code can be read directly from the host adapter by software to permit adaptive configuring by custom software drivers.

DUAL FUNCTION ARCHITECTURE. DEC's RL01/RL02 mass storage register set is duplicated in the single pcb host adapter, giving the appearance of two RL01/RL02 controllers to the operating system. The UC01/LX provides equal functionality using considerably less space and power than DEC's RLV11/RLV12 system.

LOW POWER. Only 5.7 amps is required from the CPU internal +5V power supply (no +12V power is required) via standard backplane power pins.

INTERNAL SELF TEST. Extensive self-test routines contained in microcode automatically verify host adapter operation when CPU power is applied.

SCSI INTERFACE. The UC01 conforms to the ANSI X3T9.2 Specification.



UC01 SYSTEM DIAGRAM

DISK DRIVE CONFIGURATIONS

The ability of the UC01/LX to emulate multiple RL01/RL02 logical units on a single 5¼ inch Winchester drive gives the user the benefits of the high storage capacity of new-generation drive technology, while allowing him to continue to maintain compatibility with DEC operating systems.

UC01/LX mapping capabilities can allow substantial cost and space savings over other subsystem configurations. A typical DEC subsystem might consist of two controllers with eight 10.4 MByte drives, for a total storage capacity of 83.2 MBytes. A UC01/LX configuration consisting of two physical drives (mapped as eight logical units), with two controllers, provides the same 83.2 MByte storage capacity. The savings in space and hardware costs between the two configurations makes the UC01/LX a *very* cost-effective alternative for mass storage capability on the QBus.

• Model UC01/LX

Emulates the DEC RLV11/RLV12 controller, combined with multiple RL01 (5.2 MByte) and RL02 (10.4 MByte) logical units. The UC01/LX emulating host adapter provides SCSI interfacing for connection of up to seven intelligent controllers to an LSI-11 QBus and makes transparent use of DEC RL01/RL02 software. It includes the additional benefit of full 22-bit addressing, permitting the unit to operate with DEC RLV21 software for the 4 MByte LSI-11/23+ CPU. It also features 512 word bootstrap, BDV-11 clock control, and QBus termination resistors.

A unique configuration PROM permits switch selection of any one of 120 combinations of multiple drive configurations. Logical units are mapped in contracted, standard, or expanded capacities to best utilize the formatted capacity of each drive model. The host adapter operates transparently to DEC software drivers and diagnostics for standard logical drive sizes; patches are required for non-standard logical mappings.

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Emulex Corporation, 3545 Harbor Boulevard, P.O. Box 6725, Costa Mesa, California 92626
In California, call 714/662-5600. Outside California, call toll free 800/854-7112
TWX: 910-595-2521 EMULEX CSMA • TELEX: 183627 EMULEX CSMA

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WE OFFER MORE THAN JUST A GREAT PRODUCT.

With the UC01 you get superb quality and excellent support from the EMULEX team. All pcb components are pre-aged for over 160 hours, and final product assemblies are environmentally cycled for over 96 hours (while operating) to insure ultimate reliability from the moment they are installed. Plant production capability exists to meet the highest of volume requirements. All EMULEX products are backed by a full one year warranty and supported worldwide by the company's technical applications group.

GENERAL SPECIFICATIONS

The following specifications apply to the UC01/LX Emulating Host Adapter:

Characteristic	Specification
FUNCTIONAL	
Design	High-speed bipolar microprocessor-based emulating host adapter for integration of mass storage devices to LSI-11 host computer. UC01 incorporates unique design to achieve extremely high speed operations with minimum hardware.
Computer Interface	Standard Q Bus.
Disk Interface	SCSI (ANSI X3T9.2 specification). Up to 7 controllers.
Emulation	Emulates two DEC RLV11/RLV12 controllers, using two register sets.
Bus Address Range	0–4 MBytes (22 bits).
Bus Register	Two selectable register sets, two alternates.
Vector Address	One standard and one alternate per register set.
Priority Level	Level 5.
Status Display	Edge-mounted LED for activity/error/status display under micro-program control.
Option Switches	On-board slide switches for selection of program-controlled operating/configuration options.
Bootstrap/ Terminator Option	Sockets provided for 512 word bootstrap PROM and QBus termination module.
Software Controllable Line-Time Clock	Switch-selectable BDV11 compatible clock control.

Characteristic	Specification
FUNCTIONAL (continued)	
Buffer Memory	64 byte buffer allows smooth transfer of data to and from the SCSI bus.
Media Format	Emulates RL01/RL02 format (actual format determined by controller).
PHYSICAL	
Packaging	One printed circuit board, standard QBus 4-connector interface.
Mounting	Any quad slot in standard QBus backplane or system unit.
Cable/ Connector	One 50-pin daisy chain flat cable connector.
Drive Controllers	1 to 7 controllers per UC01 Host Adapter.
ELECTRICAL	
QBus Interface	Approved line drivers/receivers used exclusively; one unit load per bus signal line.
Disk Interface	SCSI (ANSI X3T9.2 spec.); 18 feet (3 meters) max. cable length.
Power	+5V (±5%), 5.7 amps max.; standard QBus backplane/system unit pins used.
ENVIRONMENTAL	
	Exceeds all environmental ranges and conditions specified for commercial LSI-11 computers and applicable disk drives.